

**REMARKS / ARGUMENTS**

In paragraph 1 of the Office Action the Examiner objected to the Declaration that was filed with this application because: there is no given name indicated for applicant JB Canterbury, and no initial or middle name is indicated for applicant Keith Lam. Regarding applicant Keith Lam a new Declaration signed by Keith Hinge Lam is submitted herewith. Regarding applicant JB Canterbury the undersigned assures the Examiner that this is in fact the legal given name of this applicant. Mr. Canterbury was born in Alabama and it is a common practice in that part of the country for male children to be given only initials, without any periods after the initials. As the Examiner may appreciate this issue has been encountered in other U.S. patent applications as well as numerous international applications, and in each instance the foregoing explanation has sufficed to overcome the objections/inquiries of the various government officials. In view of the corrected Declaration signed by Keith Hinge Lam and the explanation of JB Canterbury's name the Examiner is respectfully urged to withdraw his objection to the Declaration.

Claims 1, 3 – 11, 13 – 16, 18 and 19 remain pending. Claims 2, 12 and 17 have been cancelled, the subject matter having been incorporated in independent claims 1, 11 and 16 respectively. Dependent claim 11 has been amended to be in independent form. Claims 1, 3, 4, 5, 6, 7, 8, 10, 11, 15, 16, 18 and 19 have been amended.

The specification was objected to for informalities. At paragraph [0009] function should have been functions. Also the feature of claim 12 wherein the burst foil being adhered to the combustion chamber was not recited in the specification. Applicants have made the appropriate corrections furthermore, applicants amendment wherein the filter is tubular and the inflator is now defined as "an inflator of cylindrical shape having a longitudinal axis", which has been inserted into the summary of the invention and in various locations in the detailed description as well as the fact that the apertures are positioned between the filter and the gas generant cup and that the apertures are in closer proximity to the exit ports than to the filter housing or inflator housing end has

been recited so to more closely reflect the claims as amended. Full support for these amendments can be found in each of the figures and they are further supported by the description of the invention wherein the fact that the inflator is recited to have a longitudinal axis and the aperture locations are at ends of features requiring the locations to be as now claimed accordingly no issues of new matter are present as a result of these amendments.

In paragraph 5 of the Office Action the examiner rejected several claims under 35 U.S.C. section 112 as being indefinite. Applicants have incorporated each of the examiner's suggestions in the foregoing amendments and withdrawal of this rejection is respectfully requested. In particular applicants corrected the term "diffuser chamber" to read "combustion chamber" in claims 4, 5, 6, 7, 8, 10 and 15 and in corresponding paragraphs of the specification.

Regarding the substantive rejections of the claims in view of the prior art, applicants wish to summarize each of the amended independent claims 1, 11 and 16.

In each of amended claims 1, 11 and 16 the gas generant is placed in a sealed container, be it a generant cup or a combustion chamber, and upon burning the gas generant the sealed end or bottom burst open only allowing the gas to flow longitudinally through a plurality of apertures wherein the gas molecules impinge the closed end of the inflator housing or filter housing and then enter the filter exiting via exit ports on the circumference in closer proximity to the plurality of apertures than to the closed end. The gas generant flow is always in a longitudinal direction until it is well into the filter area. These features are common to each embodiment in figures 1 – 5.

The original claim 1 was rejected as being anticipated by O'Driscoll (US 5,716,072). O'Driscoll fails to teach the use of apertures to direct flow longitudinally and the location of the exit ports in close proximity to the apertures to insure gases impinge the end of the filter housing prior to passing through the filter and exit ports. Also, O'Driscoll fails to teach the use of a sealed generant cup with a rupturable end. Accordingly the amended claim 1 is not anticipated by O'Driscoll and

withdrawal of the rejection is respectfully requested.

Claim 16 was rejected under 35 USC 102(b) as being anticipated by Sheng (US patent 6,068,290). Amended claim 16 has the gas flow directed longitudinally through a ruptured bottom of a gas generant cup then through a plurality of longitudinal open apertures prior to impinging the end of the inflator housing entering the filter and exiting via exit ports in close proximity to the apertures.

Sheng does not have a generant cup with a rupturable bottom. Sheng has a nozzle cup with circumferential openings radially oriented for the gases to enter and then pass through one large opening. As such the forward thrust of the gases entering the filter area is greatly slowed causing the gases to simply pass through the exit ports located all along the filter. Accordingly Sheng does not anticipate amended claim 16 and withdrawal of the rejection is requested.

Claims 17-19 were rejected under 35 U.S.C. 103(a) as being unpatentable over Sheng in view of Ruckdeschel et al (US Patent 6,056,319). Applicants note that Ruckdeschel discloses a non-cylindrical generant cup having burst openings radially extending. Sheng permits radially flowing gas to form in a burn chamber prior to entering a nozzle cup 50 which after depleting the longitudinal kinetic energy permits the gases to enter the filter housing via a large single opening in the choke plate 26. Accordingly the gas freely can exhaust all along the filter housing opening. The combination of both of these prior art references would not lead to the same gas flow pattern achieved by applicant's invention. This is important in that applicant's invention more rapidly moves the gases directly into the filter area and thus can initiate airbag filling faster with less generant. The absorption of all the kinetic energy by forcing the gases to explode radially and redirecting them through a nozzle cools the gases and removes particulates, which is the stated goal in Sheng, however, applicant's invention achieves this goal without sacrificing the needed energy to rapidly fill the airbag. Neither Sheng nor Ruckdeschel alone or in combination suggest or teach the invention as now

claimed and withdrawal of the rejection is respectfully requested.

Claims 2-3 were rejected under 35 U.S.C. 103(a) as being unpatentable over O'Driscoll in view of Ruckdeschel et al. Claim 2 has been incorporated into claim 1 and claim 3 as recited requires the ignition material to be focused to burst the rupture lid of the gas generant cup. The primary reference fails to teach a gas generant cup and the secondary reference simply employs a foil bag enclosing a hemispherically shaped cup with radial holes. The foil bag can burst at the igniter location and at the opening of the generant cup. It is important to note that the foil bag in fact has no lid and as such is dissimilar to the sealed lid of claim 3. The retainer ring in claim 3 extends beyond the igniter material and thus surrounds the burning igniter material to create the focus of gas upon ignition. The retainer ring in the prior art fails to teach this distinction.

Withdrawal of the rejection is accordingly requested.

Claims 11 and 13-15 were rejected under 35 U.S.C. 103(a) as being unpatentable over O'Driscoll in view of Simon et al (US Patent 5,611,566). Claim 11 has been amended to be in independent form incorporating the subject matter of claim 1 and cancelled claim 2. The apertures are oriented to allow unimpeded flow of gases towards the end of the housing to achieve the desired deflection. The secondary reference Simon has a deflector ring to catch slag partially blocking the apertures and thus deflects the gas flow radially inwardly prior to entering the filter housing as such this would hamper the desired effect of the present invention. Withdrawal of the rejection is respectfully requested.

Claims 4-10 were rejected under 35 U.S.C. 103(a) as being unpatentable over O'Driscoll in view of Ruckdeschel et al as applied to claim 2 above, and further in view of Simon et al. As previously stated the combination as now claimed in amended claim 1 was neither taught nor suggested in the combined teaching and disclosures of the cited references. Some of the rows of exhaust openings or holes 11 in Simon et al are shown closer to diffuser plate as noted in claims 9-10, however, most of the rows are

arguably closer to the end of the filter housing as opposed to being closer to the aperture holes. As amended each of the exit holes must be closer to the aperture as opposed to the end of the housing and as such each of the exit ports must be closer to the combustion chamber. This is important for the desired performance of the inflator. Also the angular disk 10 in Simon et al impedes at least partially the flow from the apertures and would also be detrimental to the functioning of the present invention as now claimed. For these and the previously mentioned distinctions from the prior art applicants believe this rejection should be withdrawn.

Claim 12 was rejected over O'Driscoll in view of Simon et al as applied to claim 11 and further in view of Sheng. Claim 12 has been cancelled and the subject matter has been incorporated into amended claim 11. For the reasons previously stated applicants believe this rejection should be withdrawn.

The examiner is urged to withdraw all of the rejections and allow the application as amended to pass to issue.

Respectfully submitted,



Lonnie R. Drayer  
Registration No. 30,375  
Attorney for Applicants

Key Safety Systems, Inc.  
5300 Allen K Breed Hwy.  
Lakeland, Florida 33811-1130  
Phone (863) 668-6707  
Fax (863) 668-6130